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THE A-7 ATTACK AIRCRAFT: CONTRACT  
HISTORY EMPHASIZING THE NAVY BUSINESS  
CLEARANCE PROCESS

Christopher Gleason Gates



# NAVAL POSTGRADUATE SCHOOL

## Monterey, California



# THESIS

THE A-7 ATTACK AIRCRAFT: CONTRACT HISTORY  
EMPHASIZING  
THE NAVY BUSINESS CLEARANCE PROCESS

by

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Thesis Advisor:

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September 1973

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The A-7 Attack Aircraft: Contract History  
Emphasizing  
The Navy Business Clearance Process

by

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Submitted in partial fulfillment of the  
requirements for the degree of

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from the  
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Free  
to  
be

## ABSTRACT

Beginning with intense competition for the first A-7, the Navy by necessity entered sole source negotiations for later procurements of the A-7. The operational need of these A-7's drove the Navy to letter contracts while increasing sophistication of the avionics and changing military requirements complicated the definitization of these contracts.

To better understand these problems and the Navy business clearance process, a history of the Navy Procurement Control and Clearance Division is presented in Section II. Sections I and III present A-7 contracts in case study format for the A-7A, A-7B, A-7D, and A-7E. Section IV is a case study of the A-7E VAST contract.

The procurement of a military aircraft is a complex process. The Project Manager and the contracting officer must constantly strive to make the technology advances and requirement changes compatible with sound business practices. The study of the A-7 contracts illustrates many of the inevitable conflicts that arise in this process.





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## ACKNOWLEDGEMENTS

The nature of a case study for procurement requires an insight into the real world of project management. The following interviews to supply that insight were conducted from 19 January 1973, to 5 September 1973. Without the gracious allocation of many hours from their schedules, this study would not have been possible. (Titles appear as they were during the interviews.)

Rear Admiral R. G. Freeman, III, USN, Deputy Chief of Naval Material for Procurement and Production (NMAT 02)

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## I. INTRODUCTION

The procurement of modern military aircraft is a complex process. Aircraft are produced to counter a present or future threat; but more than any other weapons system, an aircraft concept often begins as a result of some technological breakthrough. This heavy reliance on state-of-the-art advances has caused aircraft procurement to be replete with technical problems that are difficult and costly to solve. No less difficult and costly are the business problems inherent in an aircraft procurement. Although initial competition is the rule of these programs, because of the magnitude and complexity of the problem involved in producing a specific aircraft design, the second production contract has always been sole source. What may begin with 161 aircraft, \$196.0 million and a four year contract often evolves to encompass 1336 aircraft, \$4.0 billion and a fifteen year contract.

The focal point of these problems is the project office. With a myriad of people looking over the project's shoulder, the office attempts to bring the specified aircraft to production on time and within cost. This requires satisfying those persons who always want the aircraft sooner and with better performance specifications. On the other hand, the project office must satisfy the statutory and procedural requirements of higher authority (including Congress) who may have concerns other than performance and schedule. These sources pay particular attention to the concept of a fair



and reasonable price and the effective utilization of budget dollars. The Project Manager and the Contracting Officer must resolve these inherent conflicts in the procurement system in order for their project to survive and meet its objectives.





## II. A-7A HISTORY

### A. CONCEPT

The need for an airframe that could accept a new jet engine was the action that initiated the A-7 concept. Though the military contracts separately for engines and aircraft to control each important element, it is most often a new airframe concept that dictates the development of a new engine. Occasionally an engine is improved and then incorporated into an existing airframe. In this case, however, a completely new type of jet engine was being developed under a Navy contract with the Pratt and Whitney Division of United Aircraft. This turbofan jet engine, later designated the TF-30, offered much greater thrust for the same fuel consumption of a conventional jet engine. Thus any aircraft with this engine could stay airborne longer, go farther and carry more weight than previously possible. Speed was not a major factor since airframe design limited the maximum speed possible. The important factors, then, were those of an attack aircraft: loiter time over target, range, and ordnance load. In 1960, a Bureau of Naval Weapons (BUWEPS) study group included as one of its recommendations the development of a new Navy attack aircraft to take advantage of this turbofan jet engine's capabilities. Discussions continued for two years on the proposed VAL aircraft (Visual Attack, Light) until November 1962, when the Chief of Naval Operations asked BUWEPS for its VAL recommendations.



Since the TF-30 would complete development during 1963-1964, BUWEPS considered time the most important constraint. In its view, both time to contract and time to produce an operational aircraft could be considerably shortened by using an A-4 series aircraft. The A-4 was a current Navy attack aircraft then ordered into its fifth production version. This A-4D-6, an A-4 modified to accept the TF-30 engine, would only require changes to an already manned and operating production line. Thus a contract with Douglas Aircraft Corporation, producer of the A-4, would give the Fleet the new Visual Light Attack aircraft in the shortest amount of time.

Two considerations overruled this A-4 recommendation and both of them concerned the lack of competition. First, since the basic procurement statute required consideration of competition, it would be politically difficult to make the time element sufficiently firm or urgent enough to eliminate all other aircraft manufacturers but the Douglas Aircraft Corporation. This would almost certainly be manifested during Congressional Appropriations hearings and could possibly negate any time savings available from sole source contract procurement. Second, it would be economically difficult to negotiate a sole source contract of this magnitude.

To solve these and other related problems, the Sea Based Air Strike study group was formed in December 1962. In early 1963, the group briefed a meeting of eight aircraft contractors



as to the purpose of their study and solicited the help of the entire aircraft industry. The contractors represented were: Boeing, North American Aviation, McDonnell Aircraft Corporation, Lockheed, Douglas Aircraft Corporation, Grumman Aircraft Engineering Corporation, General Dynamics, Chance Vought (recently acquired by Ling-Temco-Vought).

Through April 1963, the contractors and their representatives continued to meet with the study group. These informal discussions centered on the specifications for the VAL program and the method for most rapidly obtaining these specifications. On 17 May 1963, Specific Operational Requirement W11-26 was issued by the Chief of Naval Operations which formally stated the need for a new Visual Light Attack aircraft:

The results of an exhaustive operational and cost-effectiveness analysis demonstrates conclusively that immediate action is required to update our current light attack aircraft inventory with the [new] turbofan jet engine.

Just one week later the Sea Based Air Strike study group issued its findings. The conclusions from contractor discussions and service recommendations were set down in three basic points.

- 1) The VAL should be a single-seat and single-engine light attack aircraft.
- 2) To speed utilization of the TF-30 turbofan jet engine, the VAL should be constructed from a redesign of a then current military aircraft.
- 3) The most competitive designs for modification were the FJ-5 of North American Aviation, the A4D of Douglas





Aircraft Corporation, and the F8U of Chance Vought (Ling-Temco-Vought).

## B. CONTRACT PLANNING

Procurement by formal advertising was considered impractical since only three aircraft manufacturers were being actively solicited and each was working on a different proposal (modification of his own aircraft to accept the TF-30). On the other extreme, sole source negotiation had been avoided by the unique concept of competing the modification proposals between three fleet aircraft, only one of which was originally designed for the attack mission. The choice of procurement method narrowed to either competitive negotiation or a newly devised technique called two-step formal advertising.

Two-step formal advertising would have required the three contractors to submit their modification proposals without price data in the first step. The Navy could have then rejected or accepted the proposals or required further data to make the proposals acceptable. When any or all of the proposals were technically acceptable for the TF-30 attack mission, step two would be initiated. In step two the contractors with acceptable technical proposals would bid a price for their individual aircraft modification plan. On the basis of price alone, the Navy would award the contract. In rejecting this approach, the Navy stated that the two-step formal advertising procedure would not permit trade-offs of





desired performance in exchange for price. Competitive negotiation was chosen as the procurement method.

Competitive negotiation requires the execution of certain legal and administrative documents derived from statute or departmental regulations. The central regulation for military procurement, the Armed Services Procurement Regulations (ASPR), requires that one of the seventeen negotiation exceptions under Title 10, United States Code 2304(a) be listed and supported as the reason for not using formal advertising. A Determinations and Findings (D&F) is a legal document that lists the specific exception to formal advertising and supports the decision to negotiate that procurement. This document is signed by either the contracting officer or the Assistant Secretary of the Navy, Installations and Logistics, (ASN,I&L) depending on the exception. When the ASN(I&L) signs the D&F, it is accompanied by a Request for Authority to Negotiate (RAN) which contains further substantiating reasons for negotiating that procurement. The RAN aids the Secretary in reaching a decision and may also contain proposed contracting methods, contract type, and time schedule for negotiation, award and deliveries.

The D&F (citing Exception #11, Research and Development) for the VAL development program was signed by the ASN(I&L) in August 1963. The accompanying Request for Authority to Negotiate stressed one component of the proposed contract. Under item #4, it stated, "A firm fixed-price contract will be negotiated for the total development, fabrication and



production of the Visual Attack, Light, aircraft." Under item #9, it stated "the winning contractor will be selected on the overall cost of the entire program and not just the cost of modification." The contract was priced in two parts. The cost for each contractor to modify his aircraft to the TF-30 engine within other contract parameters was considered first. Then each contractor proposed prices for varying production quantities of his aircraft. The split was necessary because only research and development funds were to be used for the modification phase.

The contract was divided into four lots. The first two lots contained the research and development aircraft; the second two lots were production aircraft. The initial VAL contract covered only the Lot I buy of three research and development aircraft plus all nonrecurring modification costs. After that, the options for the other three lots could be exercised by the Navy on specified dates. Lot II contained four aircraft for a total of seven research and development aircraft. Lots III and IV contained variable numbers of production aircraft so that the Navy could exercise these options without being forced into an all or nothing choice. For example, Lot III could be exercised for 15 to 35 aircraft and Lot IV from 120 to 160 aircraft. The target quantities were 20 aircraft for Lot III and 140 for Lot IV.

The VAL program was expected to last through 1970. The present competition concerned the 1964 contract with options through 1966. For planning purposes only, BUWEPS made



available to the competitors the proposed yearly contracts through 1970.

	<u>First Procurement</u>			<u>Other Proposed Contracts</u>			
Years	1964	1965	1966	1967	1968	1969	1970
R&D	3	4	.				
Prod.		20	140	240	240	180	132

With contract award, Lot I was firm fixed price. The other lots had unit price ceilings set at contract award, Lot II for the R&D aircraft, Lots III and IV for each variable production quantity. These price ceilings were subject to redetermination, downward only, at the later option dates. A clause from the contract stated:

Respective unit prices constitute a maximum firm fixed price subject to redetermination downward based on actual trend of experience available at date of negotiation of option price.

In addition there was a separate redetermination clause for certain contract parameters. The clause contained monetary penalties for failure to meet certain performance specifications and delivery dates. At the end of negotiations, this clause was expanded to cover the high risk areas in the winning contract proposal.

#### C. CONTRACT COMPETITION

On 12 August 1963, North American, Douglas, and LTV were required to submit their engineering proposals. Of the other contractors, debriefed by the Sea Based Air Strike





study group in May, only Grumman had chosen to continue in the VAL program. While they were allowed to compete, their choice of a single-seat but twin-engine modification went against the Navy's guidance and added the extra cost of another engine. Thus they were eliminated from the competition in final phases of negotiation.

With submission of price proposals in early September 1963, the negotiations began in earnest with the three prospective contractors. As the negotiations progressed, BUWEPS began considering the requirement for a business clearance.<sup>1</sup> Since this contract was larger than the BUWEPS internal clearance threshold of \$5.0 million, it required a formal business clearance to be submitted for review and approval to the Contract Clearance Branch in the Office of Naval Material.

On 22 November 1963, the Chief of BUWEPS sent a letter to the Chief of Naval Material (CNM) setting forth five reasons for exempting the A-7 (the Navy designation for VAL) contract from a formal business review. These were:

1. The negotiations are highly competitive and the firm fixed price contract will give the Government a fair and reasonable price.

2. BUWEPS does not intend a detailed analysis of the cost proposals due to the "keen price competition."

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<sup>1</sup>The business clearance is a requirement of higher authority in the Navy with applicable policies and procedures spelled out in the Navy Procurement Directives. It is designed to be a review of a proposed contract from a business standpoint to insure the Navy gets a fair and reasonable price.





3. The Government must allow the winning contractor to begin work as soon as possible to meet milestones in the contract and guarantee delivery of the A-7 to the fleet.

4. As stated in the Armed Services Procurement Regulations, the Navy has the duty to promptly notify those bidders whose proposals are no longer being considered.

5. Most important, BUWEPS needs extra time after the winner is announced to negotiate special redetermination clauses peculiar to the winning contractor.

The CNM approved the request of BUWEPS within two weeks on the condition that BUWEPS submit a summary business clearance concerning the initial A-7 contract (Lot I). It was evident from this action that the CNM was aware of the important time element in this procurement. He did not, however, surrender business control of this contract. Lot I accounted for less than 20% of the total contract value. The options for the other lots were above the internal BUWEPS clearance threshold, and the later options had redeterminable ceiling prices which required negotiations. In other words, the CNM still had formal review authority over more than 80% of the total dollars of the A-7A program.

Competitive negotiations continued on the A-7 program through 1963. The contractors were being evaluated across three areas:

- 1.. Technical aspects
2. Total program price
3. Cost effectiveness



LTV had placed slightly ahead of the other two contractors in Technical aspects. North American had the best Cost-effectiveness ratio in a few scenarios, but LTV was the best overall in Cost-effectiveness. In total program price, North American had the lowest modification cost (\$36.3 million to LTV's \$51.4 million) but for the total program LTV was \$79 million lower than North American (\$196 million compared to \$275 million).

The competition for this contract was intensive as each contractor had the production capacity to absorb this program. In this respect LTV probably had an advantage as its commercial business backlog in 1964 was only \$22,000. Its Government business was summed up by one Navy negotiator who commented that when the last F-8 fighter rolled off the line in 1963, he watched the LTV janitor go around and turn off the lights in the factory.

#### D. CONTRACT PERFORMANCE

On 19 March 1964, BUWFPS contract Now 64-363f was awarded to LTV for the A-7A program. This contract for Lot I was valued at \$48 million, but due to a shortage of Navy research and development funds LTV had agreed to allocate \$23.7 million of the non-recurring costs over Lot II and Lot III. The contract chronology was accepted by LTV as the Navy had proposed in the planning stage.



<u>Lot #</u>	<u>Type-A/C</u>	<u>Option Date</u>	<u>Delivery</u>
Lot I	R&D=3	19 March 64	Oct-Dec 65
Lot II	R&D=4	31 Oct 64	Jan 66
Lot III	Prod=15-35	31 Oct 64	Jan 66-Jan 67
Lot IV	Prod=120-160	31 Oct 65	Feb 67-Dec 67

In early August 1964, a combined pre-negotiation clearance for both Lots II and III was submitted to the Contract Clearance Branch in the Office of Naval Material. The negotiator proposed using the ceiling prices as a negotiation goal for the Navy. The ceiling prices could only be negotiated downward with actual data. The scarce preliminary data that was available supported LTV's original predictions or showed that LTV had underestimated some tasks. In either case, the Navy did not have data that would justify lowering the ceiling prices of the 4 aircraft in Lot II or the 35 (maximum number had been ordered) aircraft in Lot III.

As the final step in justifying his pre-negotiation position, the negotiator performed a profit analysis for Lots II and III. With the ceiling prices, each of the participants to the negotiations computed his profit predictions for LTV on Lots II and III combined. The auditor predicted 6.9% profit, the negotiator 3.5%, while LTV predicted only 1.1% profit. Even if the high prediction of the auditor was correct, the negotiator demonstrated that this was approximately one-half the profit expected in sole-source negotiation for this type of contract. Using the weighted guidelines as





a check, the negotiator calculated that the Navy's profit objective should have been 13.7% for Lot II and 14.3% for Lot III.

The Contract Clearance Branch agreed to using the ceiling prices as the negotiation goals for exercising the options on Lots II and III. These options were exercised by the Navy on 3 September 1964, (two months prior to the option deadline) for the combined ceiling price of \$76,577,170.

The negotiations for Lots II and III, while lacking any real price negotiations, did surface two other problem areas. The first problem concerned the new overhead accounts proposed by LTV in the coming sole source negotiations between the Navy and LTV. The discussion concerned the necessity of placing an "Asset Revaluation" clause in future contracts with LTV. The options covered under the contract were, of course, not affected. The purchase of spares, special support equipment, or any changes were affected, however, as these items had not been priced in the contract. This "Asset Revaluation" covered LTV's claim that Chance-Vought's assets had been undervalued at the time of purchase in August 1961. LTV had revalued the assets upward thus allowing larger depreciation expenses which in turn caused higher overhead accounts. The LTV claim was necessary due to the Government auditor's disallowance of the revalued assets. The auditor stated that the Government had done extensive business with Chance-Vought and had already paid for the depreciation of these assets, and LTV's claim, in effect, made the Government





pay twice for the same equipment. Before this problem was settled by a court decision against LTV, it affected 320 contract documents and required more than 5000 manhours by the Navy to handle the clauses and computations in negotiations and to coordinate actions with DCAA.

The second problem concerned the delay in data collection. The Contracts Clearance Branch noted that the downward redetermination of ceiling prices on each lot was available only at each lot's option date. Lot IV was the largest buy and it was imperative that actual data be available for this negotiation. The problem now manifested itself in the contract chronology. The option date for Lot IV was 31 October 1965, but delivery of Lot III started in January 1966 and would continue to January 1967. The Contract Clearance Branch requested a complete subaggregation of data on the first ten to fifteen aircraft in Lot III. The negotiator noted this was outside the scope of the contract but he did advance the possibility during negotiations of LTV aggregating actual labor hours prior to Lot IV negotiations.

The worry about early data collection disappeared with the first LTV initiated change. In the fabrication and structural testing of parts on the first research and development aircraft, LTV was forced to move the wing four inches aft on the fuselage. This change from the initial paper design impacted the autopilot system, the fuel cells, and many other subsystems. This was not a Navy-initiated change and LTV had to absorb the cost increase of the wing



move. Any data supplied after this major change was sure to justify the use of ceiling prices. In a note to the Contract Clearance Branch, the negotiator emphasized that preliminary pricing data then available supported a price \$4.5 million above the ceiling prices for Lots II and III and it did not seem necessary to collect data early for Lot IV negotiations.

The Navy-initiated changes began before Lot IV was ordered. The negotiator submitted the pre-negotiation clearance in July 1965 to buy 140 aircraft at the ceiling price of \$90,709,979. The negotiator noted this was \$508,710 above the original ceiling price due to the incorporation of three E.C.P.'s (Engineering Change Proposals). The actual cost was even higher but Navy deletion of certain electronic components from the A-7A design provided an offsetting reduction. The ceiling price was the pre-negotiation objective because the data that was available supported a price that was \$4.1 million higher than the ceiling price of Lot IV.

The Contract Clearance Branch agreed to the ceiling price as the negotiation objective but questioned the purchase of only 140 aircraft. It urged the purchase of the maximum number of aircraft available in this lot, 160, to obtain the greatest savings. Funds, however, were not available to complete negotiations for all 160 aircraft by the required option date of 30 October 1965. Negotiating outside of the specific contract coverage, BUWEPS and LTV agreed on a compromise. The growing military involvement in Southeast



Asia was causing a rising backlog of work among LTV's subcontractors. The Navy immediately advanced LTV \$682,701 long lead-time funding for Lot IV on 1 September 1965, to allow the obligation of critical subcontracts. In return for this action, LTV granted an indefinite extension of the October option date. The Navy was only required to provide long lead-time funding for as many of the remaining 20 aircraft as desired when the Lot IV option was exercised for the original request of 140 aircraft.

On 26 October 1965, the Navy purchased 140 A-7A for the ceiling price. It was also decided to provide long lead-time funding for 17 of the remaining 20 aircraft of Lot IV. Finally on 10 March 1966, the funding was available and the last 17 A-7A of NOW 64-363f were ordered for the ceiling price of \$8,600,003.

Though E.C.P.'s began accumulating during the negotiations on Lot IV, with the \$1.5 million RAID radar incorporated as early as October 1964, October 26, 1965 was the beginning of the major Navy-initiated changes in the A-7A program. A meeting was held on this date to discuss the request of the Chief of Naval Operations and the Department of Defense to accelerate deliveries of the A-7A. The strategic plans contemplated more than a squadron of A-7A delivered six months earlier than scheduled in 1967. It was clear this action could not be taken unilaterally under the fixed price contract. Initial discussions with LTV indicated a tentative price of \$4.5 million to accelerate 17 A-7A prior to June 1967. In





early November the basic A-7A contract was amended by \$3.0 million to cover the movement of 17 aircraft into the delivery schedule prior to June 1967 from the 1967 fall deliveries.

There were two other major Navy-initiated changes. First, during the test program in April 1966, the Navy encountered an engine flame-out during a simulated catapult launch. This "steam ingestion" program change was completed by December 1967 and negotiated on a price basis during October 1968, for \$1,232,861. Second, with the A-7A deployed in Southeast Asia, a group of 37 combat changes was assembled as the "fleet deployment modification" program. From January 1968 to April 1969, the A-7A (and the A-7B from the follow-on contract) were modified at sea. In July 1969, the price of this program was negotiated at \$39.6 million of which \$3,373,108 was charged against the A-7A contract.

There was one other major Navy-initiated change, but it did not add to the cost of the contract. This was the enforcement of one of the redetermination clauses. During contract competition the redetermination clauses were formalized into three specific areas and the maximum penalties were set.

Performance and Weight Criteria	\$4,125,000
Board of Inspection and Survey Deliveries	\$1,200,000
Maintainability (Field Demonstrated)	\$ 675,000

The A-7A had met all of these standards except for weight. After weighing a selected number of A-7A and using the tables contained in the contract, LTV was penalized \$674,068.93 in September 1968. LTV immediately protested that 150-200





pounds of the overweight was due to a strenghtening of the wing area to stand more severe 'g-loading'. LTV further stated that the Navy had encouraged this action. The Navy did not consider these arguments sufficient and enforced the full penalty on LTV.

#### E. OTHER CONTRACT CONSIDERATIONS

In December 1970, a review of the business clearance files for contract Now 64-363f indicated a final contract price of \$306,455,492 for the A-7A. This compared with a ceiling price of \$196,487,000 set at contract award. The increase was divided across three areas; expected within the contract, major changes, unexplained.

The majority of the price increase was expected within the contract. When the initial A-7A contract was awarded to LTV, only the basic aircraft themselves were fully priced. Many items such as technical manuals, special support equipment, spares and long lead-time funding were not covered in the contract price. There were three reasons for this action; time, requirements, personnel.

All the procurement actions in the A-7 program had been aimed at getting the aircraft to the Fleet in the shortest time. The more items the contract covered, the longer it would have taken to price these items and sign the contract. Many of the requirements were not even known at contract award, particularly spare quantities for variable quantity production lots. If the time and requirements both had been available, there still was a shortage of skilled negotiators.



In the early 1960's the Navy Bureaus had decided to rely more on their field offices in helping to price contracts. This was caused by a growing backlog of unpriced contracts at the Bureaus. Consistent with this decision, BUWEPS left certain items (spares, special support equipment, etc.) to be priced by the BUWEPS representative at LTV as the contract progressed. From the clearance folders, about \$82.5 million was priced by the field activity on the A-7A contract.

The major changes accounted for about \$10.6 million. Into this category fell the delivery acceleration, steam ingestion program, fleet modifications, RAID radar, and AIMS altitude reporting system. The final unexplained area accounted for about \$17.0 million. The majority of this area was probably devoted to the many relatively low-priced E.C.P.'s incorporated into the A-7A (over 100 by 1970) that were not separately broken out for business clearances.

In view of the many factors in the A-7A program a continuing question has been, "did LTV make a profit on Contract NOw 64-363f?" While it might have been possible to ascertain this fact under a small company, it is completely impossible to separate the A-7A from LTV's total business.

When LTV won the A-7A contract, it had a business backlog of \$112.8 million Government (with Lot I included) and \$22,000 commercial. By the end of 1968, this same part of LTV had a backlog of \$405.6 million Government contracts and \$210.0 million commercial. This rapid growth caused LTV to separate



the Chance-Vought assets from the parent company as LTV Aerospace Corporation in 1965.

The separation of LTV Aerospace Corp. did not simplify the analysis of separate contracts in either the commercial or Government area. Besides commercial business of sub-assembly work for the civil aviation market, LTV Aerospace Corp. expanded into technical schools, mass-transit, food packaging, and ski resorts. The problem on the military side was compounded as LTV had all four A-7 versions (Navy A-7A, A-7B, A-7E and Air Force A-7D) on contract from 1968 to 1970. Thus even a profit aggregation under the title of A-7 would have been useless.

Whatever the profit outcome of the A-7A contract, it gained LTV a sole source A-7 business that is now forecast through 1977 with Navy procurements:

<u>A-7A</u>	<u>A-7B</u>	<u>A-7E (projected: 31 March 1973)</u>
199	196	706 to FY78

and Air Force Procurements:

<u>A-7D (projected: 31 March 1973)</u>
435 to Dec. 1973

Further, if there was a loss on the A-7A contract, it did not seem to be reflected in the earnings per share of LTV Aerospace Corporation as presented in the following table from the annual editions of Moody's Industrial Manual:





<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>
\$3.05	\$2.12	\$2.32	\$1.18	\$1.60	\$1.57	\$2.29	\$4.24



### III. HISTORY OF THE NAVY PROCUREMENT CONTROL AND CLEARANCE DIVISION

#### A. INTRODUCTION

The Navy is unique in its control concerning the business aspect of the authority to award contracts. While the other services have advisory groups or after-the-fact reviews for contracting, the Navy requires submission on certain high dollar value negotiated contracts of both a pre-negotiation clearance and a post-negotiation clearance. The pre-negotiation position must be approved before the Navy negotiator may begin negotiating with the prospective contractor. The post-negotiation settlement must be approved before the Navy contracting officer may sign the contract. This procurement check and balance system in the Navy is controlled by the Director, Procurement Control and Clearance Division at Headquarters Naval Material Command.

This section presents a history of this Navy business clearance function as a necessary background for both the Letter Contracts Case and the A-7E VAST case.

#### B. HISTORY

Two Congressional actions in 1940 brought Government attention to contracting. First, Congress authorized use of negotiated contracts for the construction and repair of ships and aircraft, the first break with the Government policy of formal advertising for all procurements. Second, Congress



passed the "Two-Ocean Navy" concept, calling for a 70% increase in Naval forces, with a resulting increase in Navy contracts. In July 1940, to gain control in the rapidly expanding procurement arena, President Roosevelt ordered all contracting officers to obtain authority from the National Defense Advisory Committee to place contracts over \$500,000. The contract volume increased so rapidly that by December 1940 a separate agency, the Office of Production Management, was created to handle contract approval and related problems.

To cope with Navy contracting problems, in October 1941 the Navy created the Materials Division (OP-24) within the Office of the Chief of Naval Operations. As Robert H. Connery in his book, The Navy and the Industrial Mobilization in World War II, stated:

If ever the phrase 'too little, too late' can be applied to an administrative organization, OP-24 earned that dubious distinction. It's inability to perform its function adequately arose from the failure of higher authority in CNO to realize the importance of material problems. The roots of this situation go very deep. Officers of the regular Navy win acclaim through command of fighting ships not through skill in logistics planning and supervision.

With the declaration of war, Secretary of the Navy Frank Knox took two steps to centralize Navy procurement control. Since the creation of OP-24 by the CNO did not solve the material problems, Mr. Knox brought Navy procurement under the control of personnel within the Office of the Secretary of the Navy. First, he ordered all Navy contracting officers to submit contracts over \$200,000 to his office for approval.



His office also approved and forwarded contracts over \$500,000 to the Office of Production Management (soon to change title to War Production Board). Second, within a month, January 1942, he created the Office of Procurement and Material (OP&M) and assigned it to the Under-Secretary of the Navy, James Forrestal. (The Material Division, OP-24, was disestablished within three days.) OP&M was given three basic guidelines:

- 1) ". . . to coordinate the material activities of the bureaus."
- 2) ". . . to formulate common policies of Procurement, contracting, production, and field contract administration."
- 3) ". . . to provide a central organization within the Navy to act for the various bureaus in dealing with different external wartime agencies."<sup>2</sup>

Within OP&M, the head of the Procurement Branch assumed the contract approval authority for both the Secretary's Office and the War Production Board. For the first time, the entire clearance authority was controlled at one point for a military department.

In March 1942, the business clearance function was specifically created with the formation of the Contract Clearance Division within the Procurement Branch of OP&M. This function was manned by civilian business specialists

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<sup>2</sup>ONM Procurement Review Group, History of ONM Contract Clearance Branch, p. 1, 1963.





who were charged with considering all business aspects including price, specifications, sources of supply, etc. to assure the Navy got a fair price. To carry out this function, the head of the Contract Clearance Division, who was also a civilian business specialist, was authorized to sign for the Secretary of the Navy and the War Production Board in approving Navy contracts over \$200,000 (Figure II-1).

As the war drew to an end in 1945, the contract volume diminished drastically. In June 1945, it was decided that the three major bureaus, Ships, Aeronautics, Ordnance, had gained enough experience in procurement to act as their own contract clearance authorities. The other bureaus continued with the check and balance system between themselves and the Contract Clearance Division.

Within two months, however, clearance authority was again centralized in the Contract Clearance Division for all the bureaus ". . . as it became manifest that a central clearance authority was necessary to assure common procurement practices and to put teeth in the Under-Secretary's directives."<sup>3</sup> It was apparent from these actions that the Secretary of the Navy felt that some formal check and balance system was required for procurement. In this system the bureaus did the actual soliciting, negotiating, and contracting while the Contract Clearance Division provided a final independent review and approval concerning the business aspect of the contract.

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<sup>3</sup>ONM Procurement Review Group, History of ONM Contract Clearance Branch, p. 2, 1963.



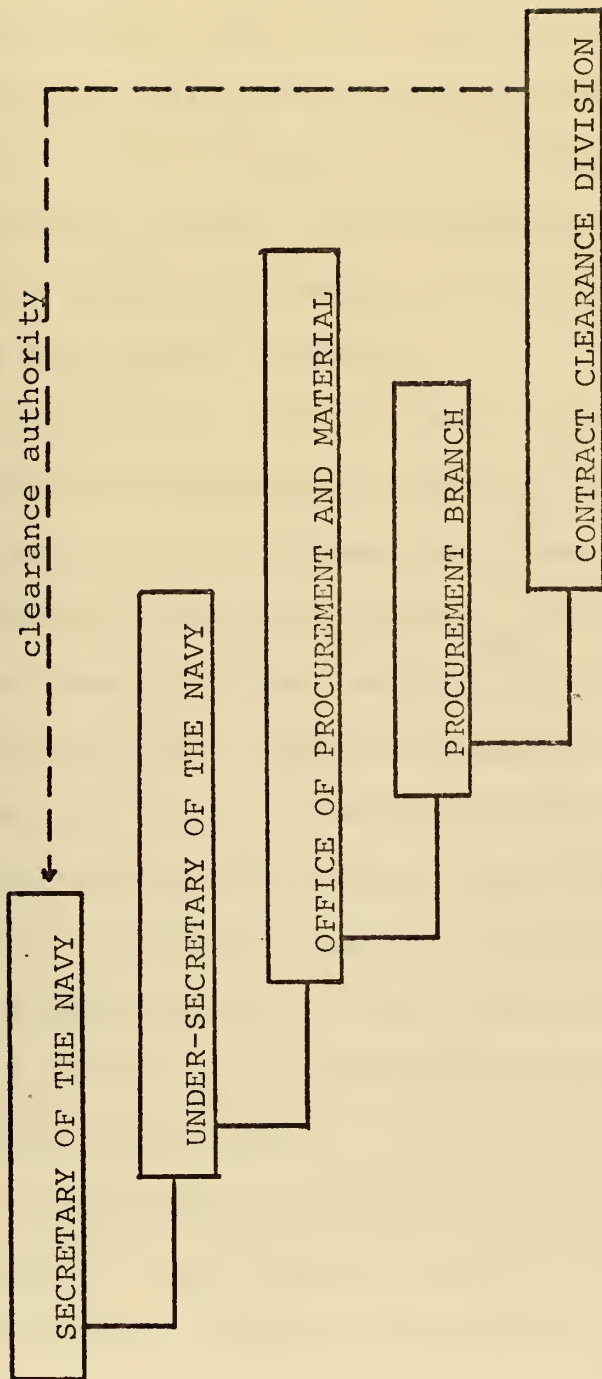


FIGURE II-1: 1943 NAVY BUSINESS CLEARANCE STRUCTURE



At the end of the War the Office of Procurement and Material was transformed to the Material Division within the Office of the Assistant Secretary of the Navy (Figure II-2). In March 1948, the 80th Congress passed Public Law 432 which created the Office of Naval Material from the Material Division, still under the Assistant Secretary of the Navy. The business of the Contract Clearance Division continued unchanged through the reorganization except after Public Law 432 the title changed to Contract Clearance Branch under the Procurement Division.

Concurrent with the hearings on Public Law 432 were the hearings on the Armed Services Procurement Act of 1947. Passage of this Act and enactment of the Armed Services Procurement Regulations added a new dimension to the business clearance function. While the Act stated that formal advertising was the preferred method of procurement and would be used when feasible and practicable, it also recognized that circumstances would exist when negotiation would have to be used. Therefore, Congress created a group of exceptions (sixteen specific and one "otherwise authorized" exception) to be cited by the services as the reasons for not using formal advertising.

The Determinations and Findings (D&F) was the statutory required legal document used by the services to cite the applicable exception and justify its use in that particular procurement. The D&F was required "to be self-supporting and capable of withstanding review against the contractual





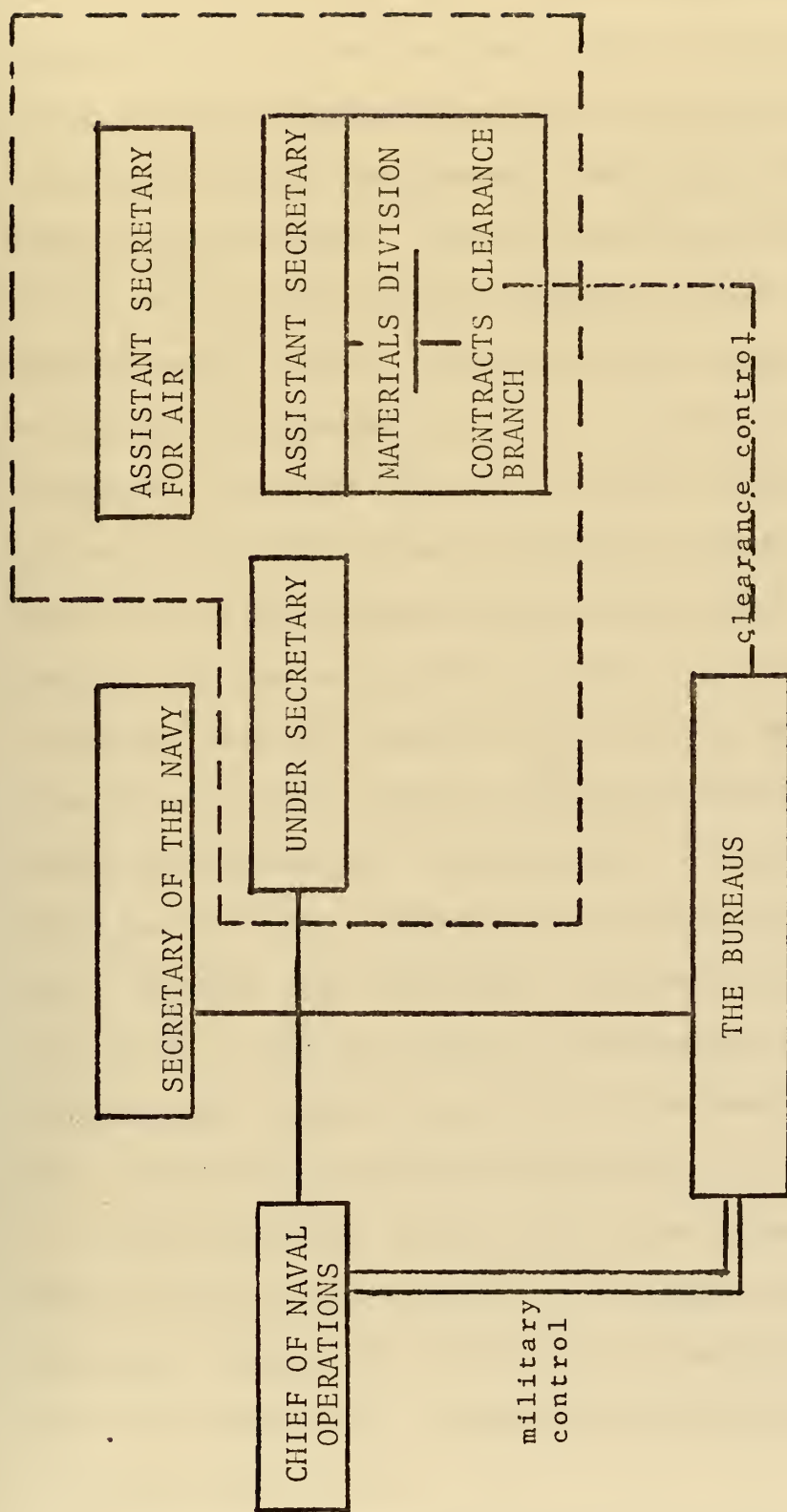


FIGURE II-2: NAVY PROCUREMENT ORGANIZATION 1945



instrument by the General Accounting Office."<sup>4</sup> Depending on the specific exception, varying levels of approval were required for the D&F and that approval had to be obtained prior to solicitation of prospective contractors. Six exceptions (small purchases, subsistence, etc.) required no signature on the D&F. Four exceptions required the signature of the contracting officer (medical supplies, competition impracticable, etc.). Six exceptions required a signature at the service Secretary level. In these instances, exceptions #11-#16, the Navy created a Request for Authority to Negotiate (RAN) that accompanied the D&F through the approval chain of command to the Secretary. The RAN was prepared by the negotiator and the contracting team. It was forwarded through channels to Office of Naval Material (specifically the Contract Clearance Branch) who provided staff assistance for the Secretary. The RAN administratively gave the Secretary supporting information for the accompanying D&F. Through this technique the Contract Clearance Branch exercised a quality check on procurement planning and the solicitation document as well as business clearance approval over the final negotiated contract.

From June 1950 through 1955, the Korean Conflict allowed determination and Findings to be issued under Exception #one (National Emergency) which did not require formal processing up to the Secretary. Towards the end of 1955, however, the

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<sup>4</sup>Harbridge House Inc., Defense Procurement Management for Technical Personnel, phase I, p. 44, 1972.



Contract Clearance Branch began requiring the use of other exceptions as practice for the Bureaus, and in January 1956, exceptions #11-#16 were again required to be processed for the Secretary's signature.

During the late 1950's increased requirements were also placed in the business clearance memorandum. These dealt with justification of the negotiated position on labor hours, material useage, overhead rates and profit rates among others. These facts enabled the Contract Clearance Branch to do a more thorough analysis of the proposed contract. The increased requirements, however, emphasized the natural conflict between the Bureaus and Contract Clearance Branch in the Office of Naval Material concerning the procurement decision process.

The Bureau proceeded through the procurement until the contract was ready to be signed. At this point the business clearance memorandum called Request for Authority to Contract, was submitted to the Contract Clearance Branch. From the point of view of the Contract Clearance Branch this was a normal part of the Procurement Administrative Lead Time (PALT) needed to insure that the Navy obtained a good business deal. To many in the Bureaus this was considered disruption that delayed the procurements, allowed outsiders to second-guess the negotiator's actions, and caused poor relations between the contracting officer and the contractor.

The Contract Clearance Branch also noted problems with the system but for a different reason. The required use of negotiated contracts in high value complicated procurements





made post-negotiation clearances difficult to process.

Occasionally, the Branch had to decide whether to approve a contract with some imperfections or force a bureau to completely reopen negotiations.

In order to achieve earlier procurement visibility, Navy directives were revised in 1959 to require a pre-negotiation clearance. In this clearance the bureau would specify its intended contract type, price, profit, labor rates, overheads, schedule, etc., in other words a complete plan for negotiation. The Contract Clearance Branch reviewed and approved the clearance before negotiations could begin. The post-negotiation clearance then had only to justify settlements that deviated from the pre-negotiation clearance thresholds. It was felt this pre-negotiation clearance would open communications early in the procurement cycle between the bureau and the Contract Clearance Branch, would allow negotiations only from a well-planned and already approved position, and would lessen delay in the post-negotiation clearance process when the desire for all due speed to award a contract was the strongest.

Since World War II, the contract clearance authority of the procuring activities had fluctuated between \$200,000 and \$300,000. In October 1961, this level was raised to \$600,000 except the Bureau of Naval Weapons (a combination of Aeronautics and Ordnance) and Bureau of Ships which were given \$1,000,000 clearance authority. In February 1962, the clearance authority for the two major bureaus was again raised, this time to \$5,000,000, while the other activities





remained at the \$6,000,000 level. At this time, however, it was reaffirmed that the Contract Clearance Branch had complete authority over all letter contracts, and all cost-plus-fixed-fee contracts over \$600,000.

With this new clearance level, the Contract Clearance Branch performed formal review of about 50% of the total dollar value of Navy contracts awarded in 1962. An additional 25% of the Navy contracts received informal reviews or after the fact surveys from the Branch. This was accomplished through informal contract or an information copy of the negotiator's internal contract clearance. In 1962, the Contract Clearance Branch processed 1,777 business clearances, disapproved 6% of those processed, and by its own records was directly credited with saving the Government between \$16-\$20 million.

That same year also marked a complete review of the effectiveness of the management structure within the Department of the Navy. In the volume, Review of the Office of Naval Material, two problems were presented that directly or indirectly concerned the effectiveness of the Contract Clearance Branch. The first point was directed at the Chief of Naval Material:

It is obvious that CNM has been placed in a technical assistant or staff assistant position . . . bureaus tend to ignore or bypass ONM. The result, of course, is less uniform practices, less co-ordinated action, and less effective over-all direction and control of Navy producer-logistics.

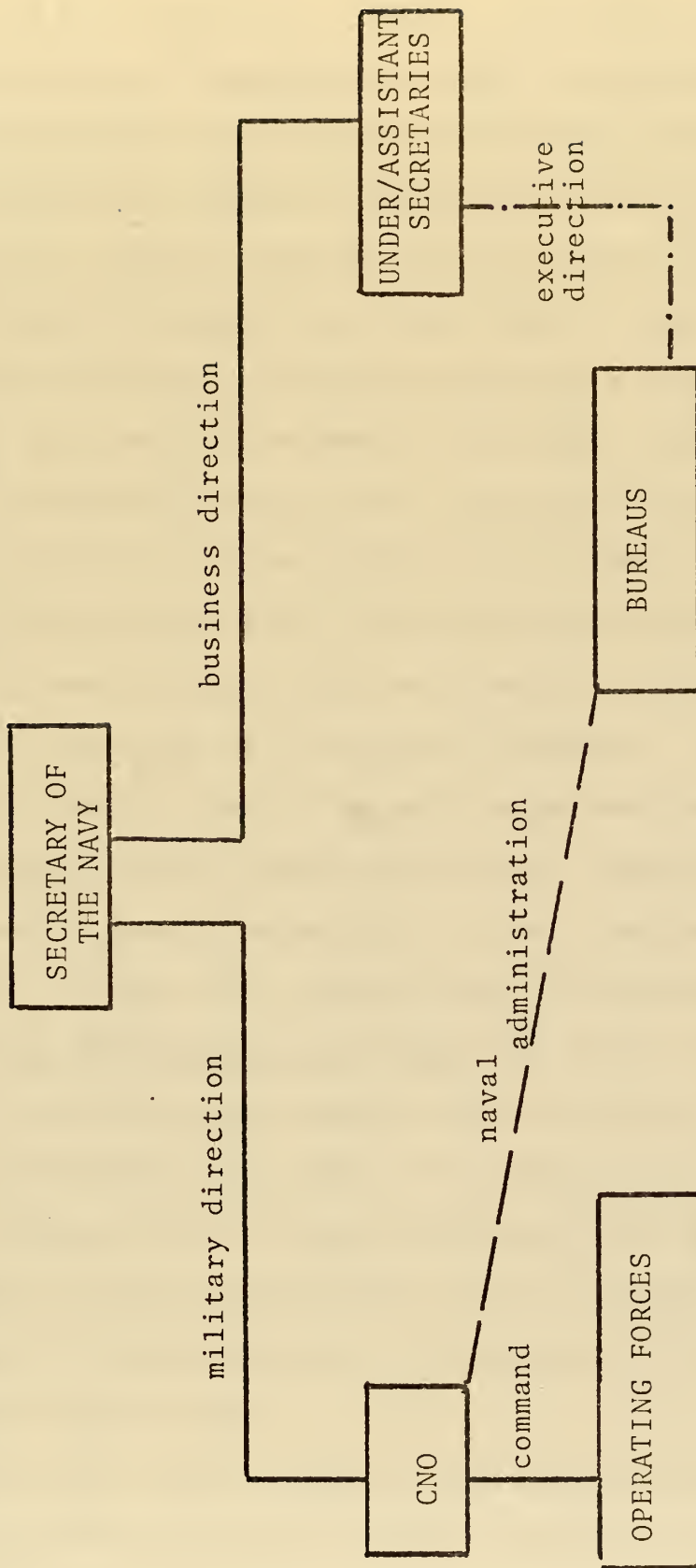
Since the bureaus could not bypass the Contract Clearance Division, it became a focal point of policy enforcement. In



a sense the chain of command channeled through the Contract Clearance Division who used their approval authority to direct procurement policy within the Bureaus. This was in addition to the function of a sound business clearance review. The second point directly illustrated one aspect of this problem. "Too frequently, poor procurement decisions are being made and/or procurements are being delayed because D&F's and their related RAN's are improperly prepared. . . ." for Contract Clearance Branch processing. Instead of being able to adequately guide procurement from its inception, the Chief of Naval Material had to rely on the final check to drive the entire system.

In response to these problems, 1966 brought the disestablishment of the Navy bilinear chain of command (Figure II-3). Since World War II the Secretary of the Navy had been the only unified point in the chain of command. Under the Secretary, the Chief of Naval Operations had commanded the operating forces (user command) while the Under-Secretary or Assistant Secretary through the Chief of Naval Material had directed/advised the logistics forces (producer command). In 1966, the Navy became a unilinear chain of command. The reorganization increased the breadth of authority and responsibility of the Chief of Naval Operations and strengthened the management of the Navy's material support organization. The Chief of Naval Operations assumed command of all Naval forces whether user or producer. The four material Bureaus were restructured into six functional System Commands under





CONCEPT OF THE BILINEAR ORGANIZATION  
FIGURE II-3:





the Chief of Naval Material, (CNM). The Office of Naval Material became the Headquarters staff for the CNM. In this capacity the Office continued to coordinate procurement matters through the Assistant Secretary of Navy, Installations and Logistics, however, direct control was now within the military chain of command up to the Chief of Naval Operations.

The Chief of Naval Material was now in a position organizationally to direct procurement in the Navy instead of merely using the Procurement Control and Clearance Division (new title for Contract Clearance Branch) to enforce policy. The business clearance was still a necessary part of Navy procurement, but it was no longer the only method to influence the procurement practices of the Systems Commands. In his new position the Chief of Naval Material received some powers originally held at the Secretarial level. Among these was the business clearance authority that had remained unchanged since 1942. It was still derived from the Secretary by law but the Naval Procurement Directives now read, "Business clearance is the required approval by the Chief of Naval Material of the business aspects of proposed contractual actions" (Figure II-4). Organizationally, the Head of the Procurement Control and Clearance Division reported to the Deputy Chief of Naval Material, Procurement and Production (DCNM,P&P) (Figure II-5).

Over the next seven years the Procurement Control and Clearance Division underwent several changes. The first change, with the unilinear chain of command, was that the



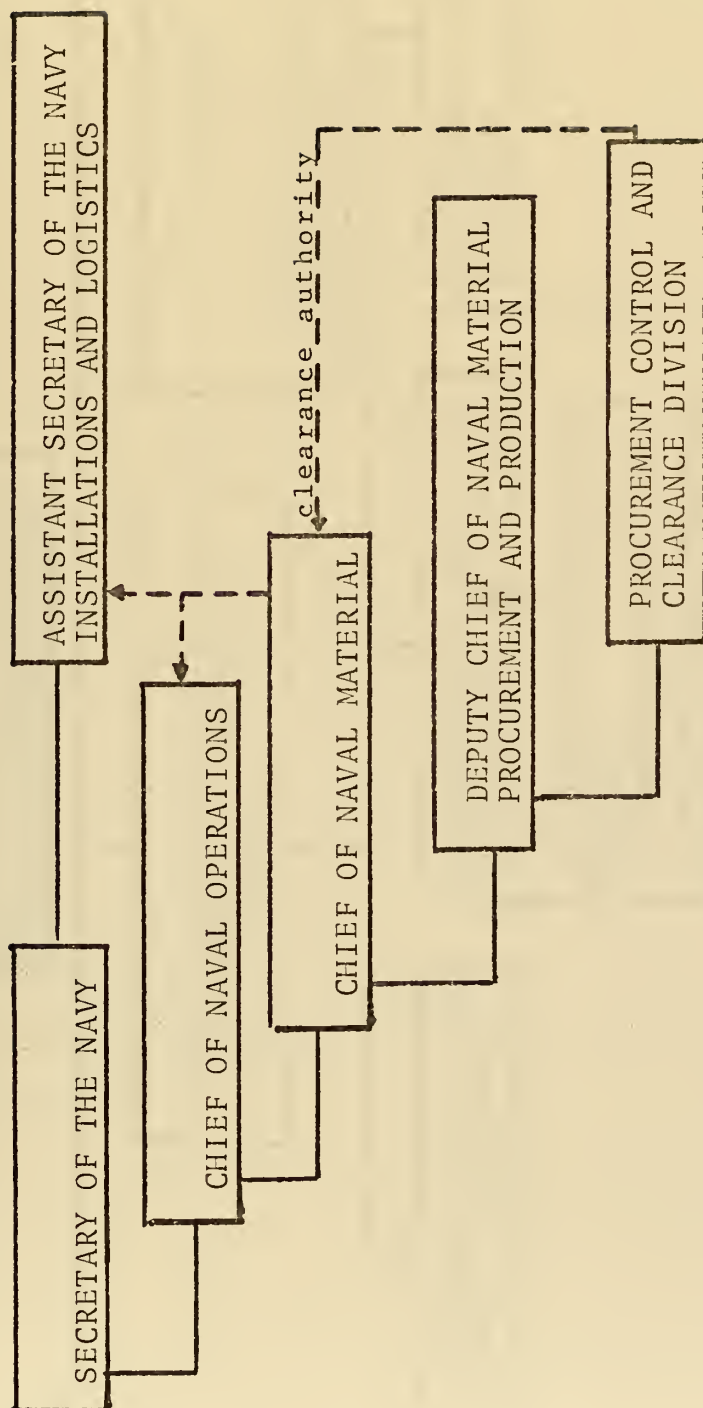


FIGURE II-4: 1973 NAVY BUSINESS CLEARANCE STRUCTURE



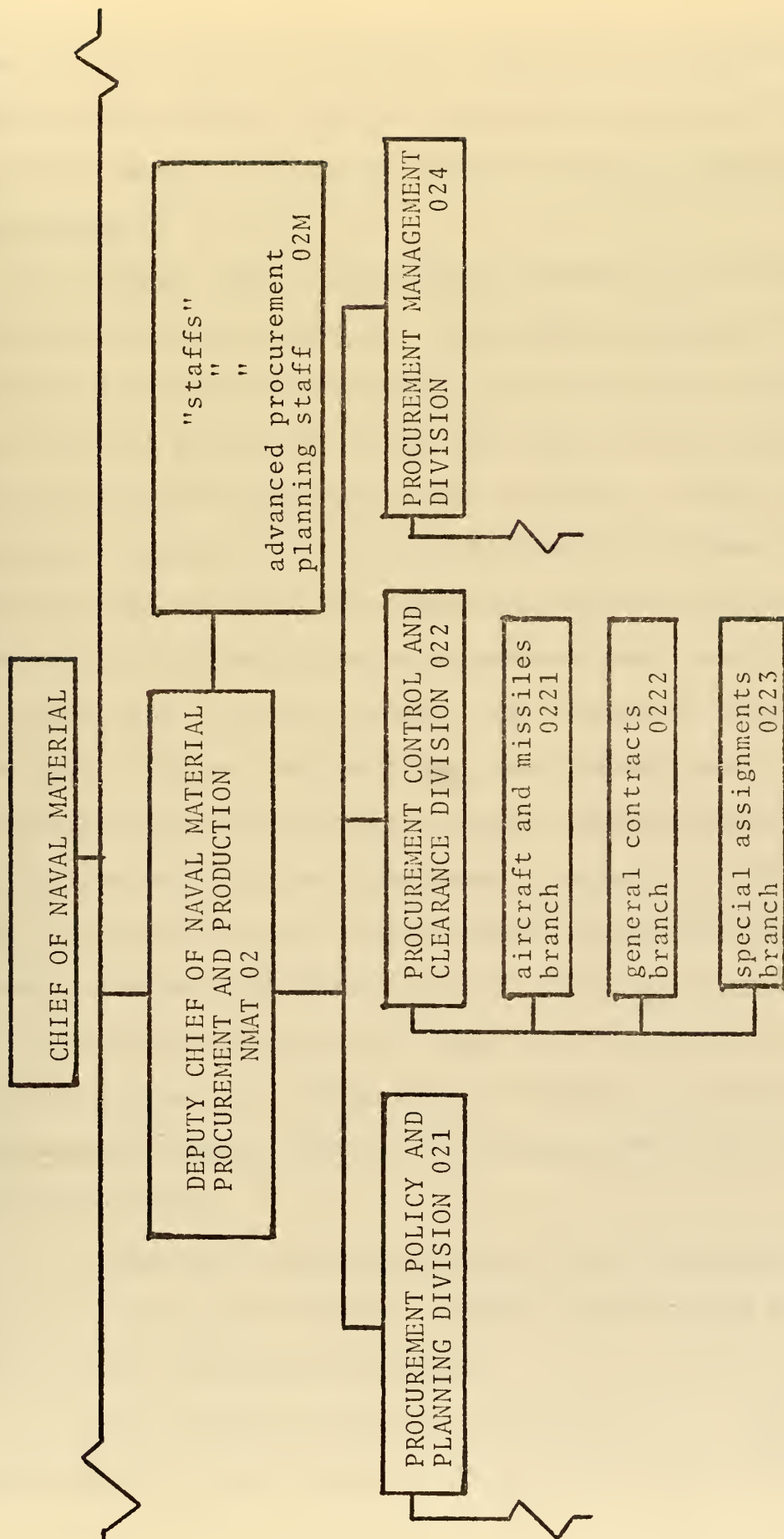


FIGURE II-5: NAVMAT 02 ORGANIZATION ( PROCUREMENT AND PRODUCTION )



Head of the Division no longer signed for the Secretary on business clearances. He was using the authority of the Chief of Naval Material as set forth in the Naval Procurement Directives.

In January 1972, the business clearance requirements received a thorough review. The review examined the balance between an effective clearance review of major Navy contracts and the most effective use of the small Headquarters staff involved in the clearance review function. Since the business clearance levels for the procuring activities had remained unchanged since 1962, the impact of inflation alone was cause for a reevaluation of the Headquarters staff workload.

As a result of this review, the clearance thresholds for the Air, Ordnance, and Ship Systems Command were increased from \$5.0 million to \$10.0 million. Several other procuring activities were granted clearance thresholds of \$2.0 million and \$3.0 million while the remainder of the Navy activities were increased from \$600,000 to \$1.0 million.

In order to insure that these new thresholds were not misinterpreted as a relaxation of business standards Navy Procurement Circular #25 of 18 January 1972 was issued. This circular stated:

1) "Each Navy procuring activity shall establish requirements for pre-negotiation business clearance and post-negotiation business clearance."

2) "The business clearance memorandum . . . shall be approved within the Navy procuring activity at a level higher





than that of the individuals assigned to participate in negotiations" (for contracts greater than \$100,000).

3) "The documentation shall be retained in the files of the Navy procuring activity."

4) "The CNM will, from time to time, conduct such reviews of procedures and records as appropriate to assure full compliance with the directive."

In March 1972, the organizational placement of D&F and RAN processing was also reviewed. These documents were closely tied to the concept of Advanced Procurement Planning, the milestones relating to technical development, and the interfaces within the user-producer chain of command for both the Navy and the office of the Secretary of Defense. Specifically, the D&F and RAN process was not an integral part of the business clearance function. The need for responsiveness prior to the start of procurement caused the D&F and RAN processing to be moved under the direct control of DCNM,P&P, as a staff function. This was accomplished in March 1972.

In January 1973, the responsibilities of the Head, Procurement Control and Clearance Division, were set forth in NAVMATINST 5430.33C as:

Provide NAVMAT, the DCNM(P&P), and procuring activities of the Navy with centralized guidance and advice in the area of contract clearance and control. These responsibilities include:

a. Reviewing business clearances for proposed contract awards for compliance with all applicable requirements of law, ASPR,NPD's, and good business practice.

b. Approving or disapproving business clearances prior to award of contracts by Navy procuring activities.



The Procurement Control and Clearance Division (Figure II-5) was staffed with twelve people, two secretaries and ten contract specialists (including the Director and Deputy Director). The Division workload in FY73 comprised the review of about \$7.0 billion or approximately 75% of the Navy procurement dollars for that fiscal year. To accomplish this, the Division often had in process 25-30 major business clearances (above a procuring activity's internal clearance threshold) to be approved or disapproved and 250 information copies of internal procuring activity clearances to be reviewed.



#### IV. LETTER CONTRACTS CASE

##### A. INTRODUCTION

The period 1966 to 1970 was one of peak activity in Southeast ASia. The resulting urgent short lead-time requirements severely tested the capabilities of the Department of Defense and the defense industry. The problem was compounded by changing policy decisions designed to manage the Southeast Asian activity, to the maximum extent practicable, within the existing budget constraints.

The A-7 program in the 1966 to 1970 time frame was a striking example of these problems. Since the A-7 was proving to be an excellent attack aircraft, the Navy decided to expand its development to more sophisticated configurations. Further, as tactical combat improvements were discovered, they were added, on a rush basis, to the A-7's already produced. In this same time frame, the Air Force joined the A-7 program and developed another version of the A-7 for its mission requirements.

This Letter Contracts Case discusses the actions the Navy took to satisfy its own and the Air Force's requirements. The procurement actions are separated by aircraft type (Navy A-7B, Air Force A-7D, Navy A-7E) although the events often overlap. It should be kept in mind that during this period meeting schedule was considered to be of paramount importance.





When schedule is emphasized, there are two contracting methods that are most often used: letter contracts and long lead-time funding. Letter contracting is defined by Mr. Dean Pace in his book, Negotiation and Management of Defense Contracts as precontract coverage, unneeded in formally advertised procurement but an everyday fact of life on a negotiated procurement. As he states:

Despite the risk, it is a fact of business life in the defense industry that the vast majority of contractors on negotiated procurements go to work and incur costs before receipt of a fully executed contract. A letter contract, although by no means a perfect solution, is the best possible precontract coverage. A letter contract is a contract. It contains a schedule and general provisions.

In NAVAIR inst. 4280.2 of 2 February 1971, long lead-time funding was retitled advance procurement and defined as:

a contractual commitment to a contractor to proceed with that effort, including planning and engineering, placement of orders for material with vendors and subcontractors, and other production effort, necessary to protect the required delivery schedule for the contract end items cited in the Advance Procurement contractual document. As a general rule (this funding) shall be effected by issuing a modification to an existing contract with the same contractor for like items.

#### B. NAVY A-7B

On 28 March 1966, just after the last 17 aircraft were purchased on the A-7A contract, an Advanced Procurement Plan (APP #5-67) was issued that covered the continued purchase of the A-7 series for the Navy. This APP stressed that the new A-7 (designated A-7B) would have to be in production by January 1968 to keep the LTV production line open. A-7A production was scheduled to complete in December 1967. To



accomplish this, the APP projected an FY67 procurement of 230 A-7B's. Based on the A-7B capabilities and cost, future A-7 aircraft requirements were estimated as follows:

<u>FY58</u>	<u>FY69</u>	<u>FY70</u>	<u>FY71</u>
240	156	170	170

On March 31, 1966, Determinations and Findings #0003-67 approved the procurement of 230 A-7 type aircraft. Contractually the procurement began 11 July 1966, as the Navy added a long lead-time supplement to the basic A-7A contract. This supplement for \$3.87 million covered the procurement of vendor materials for 230 A-7B to be delivered January 1968 to December 1968.

During August 1966, Secretary of Defense McNamara, sent a memo to the Navy and Air Force Secretaries. The main purpose of the memo was the discussion and approval of Air Force entry into the A-7 program. In consideration of the contracting problems that might result from the two services procuring these new aircraft, the Secretary of Defense set the following policy in the memo:

Letter contracts are authorized for initial contracting actions which may be necessary for early delivery of prototype aircraft, for long lead time items, and for contractor effort required to define the production configuration, specifications, schedules, and costs for the definitive production contract.

In November 1966, the Navy separated the long lead-time funding for the 230 A-7B's from the A-7A contract. 110 A-7B's were placed under a letter contract limited to \$38.6 million (50% of estimated contract value). The other 120 A-7B's were



added as a long lead-time supplement to this letter contract and limited to \$29.9 million. Limited funds in the Navy had caused the procurement to be divided into two parts. Funds were available for the 110 A-7B's but the other 120 were kept on long lead-time funding. The long lead-time items were substantially common to all A-7's thus, if the Navy changed its A-7B requirements, these items could be applied to some other part of the program. In the approved business clearance, the negotiator stated that a definitive contract was impossible at that time due to late contractor proposals and late audits caused by the demand for the new Air Force A-7D program. The negotiator did, however, expect to convert to a fixed-price type contract in 180 days.

During early 1967, LTV completed its negotiation position for 230 A-7B's. Before negotiations could begin, the Navy reconsidered the 120 A-7B's on long lead-time funding and decided to procure only 86. The long lead-time items could still be used in another part of the program or another fiscal year procurement, but the decision made LTV's negotiation position invalid. A meeting in March 1967, between NAVMAT and NAVAIR raised the issue of possible multi-year procurement in the A-7 program. The discussion highlighted problem areas with multi-year procurement but did not solve the immediate A-7B problem. The A-7B letter contract definitization date was slipped to 30 September 1967.

On 29 September 1967, an approved business clearance memo extended the definitization date to 31 January 1968. The





other 86 A-7B's were added to the contract for a total procurement of 196 A-7B's covered by the letter contract. The contract was limited to \$135.5 million (90% of contract value). This new limitation had been authorized by the Commander of NAVAIR during May 1967 in a memo that allowed extension of the limitation on all letter contract from 50% to 90% if necessary.

On 31 January 1968, provisional billing prices were set for the first 76 A-7B's. This action allowed LTV to collect payment for aircraft delivery, which had begun in January 1968, even though the letter contract was not yet definitized. It was stated at that time that the definitization date had been moved to 20 June 1968 by a previous agreement. Further, the proposal that LTV was then preparing covered the 196 A-7B's delivered over an extended schedule from January 1968 to April 1969. The 76 aircraft with set billing prices would be delivered through May 1968 and the billing prices were only 80% of LTV's proposed price to incentivize LTV to accept an early firm fixed-price contract.

The pre-negotiation position for converting this letter contract to firm fixed-price at \$132.7 million was conditionally approved on 4 April 1968. The Procurement Control and Clearance Division stated, however, that the top of the firm fixed-price profit range that NAVAIR recommended was not appropriate since 60% of costs had been incurred. They further asked that the more than 100 Engineering Change Proposals (E.C.P.'s) on the A-7B amounting to about





\$50.0 million be included in the clearance and not separately negotiated.

The negotiations began, but during May 1968 the negotiator stated that NAVAIR was considering a fixed-price-incentive contract instead of firm fixed-price type contract. In June, provisional billing prices were set for the next 31 aircraft as the negotiations continued through the final delivery of the 76 A-7B's with provisional billing prices. The billing prices were the same as before (80% of LTV's estimated price). This billing price document also stated that all the changes applicable to the A-7B under the "Fleet Deployment Modification," program would be negotiated with that program and not with the basic A-7B contract. Also during June a complete presentation of the A-7B contract to date was made by NAVAIR contracting officers to the Procurement Control and Clearance Division. After explaining the problem areas and requesting some changes from the pre-negotiation position, the contracting officers returned to negotiations with NAVMAT approval for increasing costs in those areas verified by the latest June audit.

On 29 July 1968, the A-7B post-negotiation clearance was approved and the 196 A-7B's were procured for \$140,415,000 with a firm fixed-price contract.

#### C. AIR FORCE A-7D

August 1966 marked the official approval by the Secretary of Defense concerning Air Force entry into the A-7 program. This approval was contained in a memo authorizing the use of



letter contracts. In October 1966, the Navy awarded a letter contract to LTV for long lead-time funding on 20 Air Force A-7D's to be delivered April through December 1968. The contract was limited to \$19.0 million for the long lead-time items and was to be definitized in April 1967 (180 days from contract award).

The A-7 contracting officer in NAVAIR sent a memo in December 1966 to the A-7 project office expressing his concern over the use of letter contracts and emphasized the following points:

The letter contracting method has a serious deficiency in that it compromises our negotiation position to a serious extent. This factor is of considerable importance in the light of LTV's reluctance to contract on any but a firm fixed price basis.

The contracting officer proposed that the funding and delivery schedules be submitted to his office for both the Navy and Air Force programs. With this combined information, he would prepare three separate contracting approaches for LTV quotations. Depending on LTV's responses, the most advantageous contracting approach for the Government would be chosen and the Navy could manage both programs (Air Force and Navy) under one contract. The approaches proposed were single year firm-fixed-price or fixed-price-incentive with a third alternative of a multi-year contract.

The contracting approaches never got beyond the planning stage as both the Navy and Air Force changed their requirements. The Navy decreased the number of A-7B's from 230 to 196. The Air Force also decreased its A-7D procurement for



FY67 to 12 aircraft. Actually the Navy performed both actions after accepting Air Force inputs for the A-7D program. The Navy A-7 project office was staffed with a few Air Force personnel who interfaced the Air Force's requirements for A-7D into the total A-7 program.

Advanced Procurement Plan #53-68, issued on 17 July 1967, stated that of the 20 Air Force A-7D's originally provided long lead-time funding, only 12 were placed under a letter contract. The Air Force was considering a FY 68 procurement of 100 A-7D's. The Air Force, however, was reluctant to commit itself because the Air Force A-7D was being designed and built basically to the Navy A-7B specifications. Since the Navy was considering an advanced version (called the A-7E) the Air Force wanted to keep open its options in order to obtain the latest aircraft configuration.

Four times during the summer and fall of 1967, the Air Force letter contract definitization date was extended and the funding limitation was increased. During October 1967, the funding for the original letter contract was increased to \$47.4 million and a FY68 procurement of 62 A-7D's was added to the letter contract. The definitization date was extended to 15 December 1967, and the Navy negotiator stated in the business clearance memo that the extra time was necessary, "to allow the Air Force and the contractor to establish firm contractual specifications and guarantees for A-7D aircraft."





In December 1967, the Navy made the decision to proceed with the new A-7E program instead of further procurements of the A-7B. The Air Force expanded the delivery schedule of its FY67 procurement (originally April to December 1968) to April 1968 through March 1969 as follows:

<u>April</u>	<u>July</u>	<u>Nov</u>	<u>Dec</u>	<u>Jan</u>	<u>Feb</u>	<u>March</u>
2	1	1	1	2	3	2

With the first two aircraft delivered in April and the letter contract undefinitized, provisional billing prices were established on 27 June 1968. The negotiator proposed billing prices set at 85% of the LTV proposal for all aircraft delivered. The approved business clearance contained provisional billing prices at 80% of LTV's proposal and covered only the first 5 A-7D's since the letter contract was expected to be definitized by 31 December 1968.

With the Navy now committed to the A-7E program (a March 1968 APP had converted all proposed A-7B contracts to A-7E requirements from FY68-FY72), the Air Force did a complete reevaluation of its own A-7D requirements. In October 1968, instead of adding a new FY69 procurement to the A-7D program, the Air Force issued a memo entitled "Stretch-out of delivery schedule and refunding of program" for the A-7D. In this memo, the A-7D's already on contract for FY67 and FY68 had their production schedule stretched to cover three fiscal year's procurements. With no new A-7D's procured in FY69, the letter contract was changed as follows:



<u>Old</u>		<u>New</u>	
FY67-	12 A-7D's	FY67-	5 A-7D's
FY68-	62	FY68-	12
		FY69-	57

A post-negotiation clearance on 29 October 1968 approved this action even though the LTV proposal was not expected until 15 November. It was necessary to immediately get the revised production schedule on contract since LTV had already obligated \$81.0 million on the old FY67 procurement (90% of estimated cost) and \$47.5 million on the old FY68 procurement (50% of estimated cost). With the fourth A-7D due in November 1968, LTV had to redirect its efforts to avoid wasting money. Even with LTV changing schedules immediately, the Navy estimated the 74 A-7D's would cost \$40.0 million more under this new program. By extending the schedule, however, the Air Force contended that more of their A-7D's would be produced under the new A-7E specifications.

LTV made its proposal for the stretched-out A-7D program on 22 November 1968, however the audit and the review from the Naval Plant Representative Office (NAVPRO) had not yet arrived. On 23 December 1968, NAVAIR requested an extension of the A-7D letter contract to 31 May 1969. The extension was approved and the negotiator stated that he planned to convert the FY67-FY68 A-7D contracts to single-year firm-fixed-price or fixed-price-incentive contracts.

On 20 December 1968, NAVAIR also briefed the Procurement Control and Clearance Division on a propose fixed price



incentive contract with successive targets. This concept proposed to set a preliminary target price, ceiling price, and share ratio to motivate the contractor toward cost reduction. As such it was considered to be a viable alternative to a letter contract. Then, as data was available the firm targets would be negotiated for each fiscal year procurement. It was proposed that this approach include both the Navy A-7E and Air Force A-7D programs from FY67-FY69.

The fixed-price incentive, successive targets approach was approved and a pre-negotiation position was prepared 23 January 1969, that included both the Air Force and Navy Programs, FY67-FY69.

After December 1968, all A-7D procurements were negotiated with the Navy A-7E procurements. The A-7E history which is discussed below contains the conclusion of these joint procurements.

#### D. NAVY A-7E

Advanced Procurement Plan #53-68, (of 17 July 1967) was one of the first official documents concerning the Navy's consideration of the A-7E program. The A-7E appeared physically to be a copy of the A-7A or A-7B. Internally, however, the A-7E design called for navigation and bombing avionics that pushed the state-of-the-art, a rapid-fire Gattling gun and a new turbo-fan engine rated at 30% more thrust than that for the A-7B. Because of these technology advances, it was proving difficult to establish firm specifications. Further,





the A-7E was more expensive than the A-7B. APP #53-68 stated that the FY68 A-7 procurement had not yet been decided but the choice was between 240 A-7B's at \$202.0 million or 150 A-7E at an estimated \$248.0 million.

On 7 December 1967, the Navy decided to immediately buy the A-7E under authority of D&F #0003-67. This was possible because only 196 A-7B's were ordered while 230 A-7 type aircraft had been authorized by the D&F. With this authority, long lead-time items and funds all available, the Navy chose not to proceed through the normal budget leadtime and the A-7E decision was written into the FY67 procurement.

The business clearance memo was approved on 28 February 1968, to issue a FY67 letter contract to LTV for 7 A-7E's. In the memo the negotiator stated, "It is impossible to issue a firm contract at an early date because the contracting proposal has not yet reached the point of a pre-negotiation position due to the late receipt of the LTV proposal." The contract was limited to \$21.5 million (50% of estimated contract value) and was to be converted to a fixed-price type contract by July 1968 (180 days from contract award).

With this first procurement of the A-7E, the Navy studied its A-7 requirements based on the increased cost and performance capabilities of the A-7E. In March 1968, APP #6-69 was issued with these new requirements but was immediately withdrawn to be rewritten to multi-year requirements. In April 1968, APP #6-69 was reissued unchanged as the multi-year procurement problems were still being studied. The FY68





procurement was set at 150 A-7E's but the price had been reestimated to about \$200.0 million. The other fiscal year requirements were projected as follows:

	<u>FY69</u>	<u>FY70</u>	<u>FY71</u>	<u>FY72</u>
OLD=A-7B	214	180	160	160
NEW=A-7E	214	108	68	48
A-7D	146	174	76	47

On 20 June 1968, the FY68 buy of 150 A-7E's was added to the original A-7E contract. It was felt that as the contract clauses and specifications were agreed upon, it would be easier to negotiate for both procurements at one time. This section of the letter contract was limited to \$97.5 million (50% of estimated contract value).

The problems of a multi-year contract with LTV were not solved during the summer of 1968, and in October the Navy proceeded with a separate FY69 A-7E procurement. On 22 October 1968, long lead-time funding for 160 A-7E's (instead of the projected 214) was provided. The funding was limited to \$31,0 million for long lead-time items but a ceiling price was agreed to by LTV at \$260.4 million for the 160 A-7E's (115% of the Navy estimate). Again, reasoning that it would be easier to negotiate one contract when the current problems were solved, this procurement was also added to the original A-7E letter contract.

On 19 November 1968, the A-7 contracting officer notified the Deputy Commander of NAVAIR that since procurements of A-7E and A-7D aircraft were less than the proposed requiremets,



LTV had firm-fixed-price vendor options that would lapse on 31 November 1968. The contracting officer estimated a savings of \$13-\$15 million if LTV was allowed to exercise these options rather than renegotiate similar subcontracts at the time of the next fiscal year buy. Even though it was a year early for a normal obligation of funds on a FY70 procurement, the contracting officer recommended long lead-time funding immediately for a FY70 buy of 78 A-7E's and 128 A-7D's.

On 21 November 1968, the Assistant Secretary of the Navy, Installations and Logistics, signed the D&F which approved the procurement of "about 206 A-7 series aircraft." On 24 November 1968, the business clearance was approved for long lead-time (LLT) funding of 78 A-7E's at \$7.0 million and \$7.5 million for 128 A-7D's.

Originally these two FY70 A-7 procurements were added to the separate Navy A-7E and Air Force A-7D letter contracts.

<u>Navy / A-7E / Contract</u>			<u>Air Force / A-7D / Contract</u>		
FY67	7		FY67	5	
FY68	150		FY68	12	
FY69	160	LLT	FY69	57	
FY70	78	LLT	FY70	128	LLT

In December 1968, the Navy decided it would be easier to convert the separate Navy and Air Force letter contracts into a single fixed-price type contract. Only the firm requirements were worked into the pre-negotiation position. Thus the Air Force and Navy FY70 commitments were combined under



another contract, long lead-time supplement N00019-70-C-0497, to be negotiated later.

The pre-negotiation clearance was approved 23 January 1969, to convert the FY67-FY69 combined letter contracts to fixed-price-incentive, successive targets. As stated previously, this type of contract allowed the Navy to set initial target costs, initial target profits and an initial share ratio. When sufficient data was available prior to a prescribed reset date, the initial targets would be converted to firm targets. In the interim, however, the contractor had the economic motivation of a fixed-price type contract. This was emphasized by a contract ceiling price that was the maximum Government liability.

The FY67-FY69 negotiation was the beginning of combined Air Force and Navy contracts for A-7's. The FY70 A-7D/F procurements were kept together in the long lead-time supplement and each fiscal year thereafter the Navy and Air Force A-7 requirements were covered by one contract.

The post-negotiation clearance was approved and the combined letter contracts were converted to fixed-price-incentive, successive targets, on 17 February 1969. From the accepted pre-negotiation position the negotiator had lowered the combined initial target prices a total of \$10.4 million to \$478.4 million for 317 A-7E's and \$208.3 million for 74 A-7D's. The negotiator stated that these low prices from LTV appeared designed to keep the Air Force in the A-7 program and to encourage the Navy to remain at a high production rate.





On 18 July 1969, the Navy reduced the FY70 A-7E's on long lead-time funding from 78 to 27. The Navy now planned to stretch the A-7E production into the late 1970's as a method of economically supplying spare aircraft without having to restart production. The Navy requested that LTV respond by September 1969 with a proposal for a revised FY70 requirement of 27 A-7E's and 128 A-7D's.

By December 1969, LTV had expended all of the \$7.5 million FY70 long lead-time funds for the Air Force A-7D's. The cut-back in Navy requirements, however, had allowed LTV to continue funding the A-7E. LTV's proposal was expected in early 1970 for the FY70 A-7E/D procurement. With this tentative schedule, \$23.4 million was added to the A-7D long lead-time funding. At the same time the negotiator noted that LTV had been under a heavy workload recently supplying the pricing information for the FY67-FY69 procurement on the fixed price incentive, successive targets, contract. The A-7D's covered by this contract had started delivery in April 1968, and the A-7E's in November 1968. Thus there was a great amount of pressure on both LTV and the Navy to compile the necessary data to set firm targets.

The price proposal for the FY70 procurement was submitted by LTV 31 January 1970, but it was soon withdrawn. This was caused by a change in FY71 A-7D requirements from 150 to 88. The Air Force decided to stretch the FY70 procurement over three extra months to maintain an even production flow. While LTV prepared a new price proposal for the stretched FY70



procurement, funds were again exhausted for the Air Force A-7D.

On 23 April 1970, the long lead-time funding was increased by \$82.5 million to sustain LTV work on the A-7D through a new contract definitization schedule as follows:

30 April - Audit & NAVPRO Reports

15 June - Pre-clearance to NAVMAT

29 June - Begin Negotiations

10 August - Complete Negotiations

31 August - Post clearance to NAVMAT

30 September - Contract

In May 1970, however, this proposed contract schedule was changed. NAVAIR decided it would be advantageous to negotiate a letter contract at that time rather than continuing under the long lead-time authorization to a definitization in September 1970. As a result, a NAVPRO report was completed in May and the audit report arrived in early June 1970 for the negotiations on a letter contract to cover 27 A-7E's and 128 A-7D's. The contract was limited to \$196.9 million Government liability through December 1970 (including previous long lead-time funding of \$120.4 million) at which time this contract was to be definitized.

The letter contract was never awarded as the negotiations became deadlocked over specifications. By this time the A-7F had accumulated \$10.24 million and the A-7D \$10.5 million in E.C.P.'s from the FY67-FY69 contract. In addition, there were even newer changes estimated at \$1.5-\$2.0 million. The Navy



and LTV did not agree on the price of these new changes nor how many of the "older" changes should be included in the base specification for the FY70 procurement. Before agreement was reached on this contractual difference, a major problem with the FY67-FY69 contract interrupted negotiations.

The pre-negotiation clearance for conversion to firm targets on the FY67-FY69 contract was conditionally approved in April 1970. The Procurement Control and Clearance Division instructed the negotiators to cover four areas in greater depth in the post-negotiation clearance. Of prime interest was the subcontracting area. The post-negotiation clearance was submitted on 29 June 1970, and disapproved due mainly to the lack of information on subcontracts.

Due to the increased labor and material costs and higher overhead accounts as verified by the audits, the proposed target prices had increased from the initial targets. Even with LTV getting less profit than the initial prediction, the target prices were now \$224.8 million for the 74 A-7D's and \$517.5 million for the 317 A-7E's.

After the disapproval, a letter was received from LTV dated 26 June 1970, that stated the actual material costs used as a basis for FY67 and FY68 negotiations had been overstated \$12.8 million. The production models in these two years had incorporated a new avionics unit in place of an older but similar unit. In this one-for-one change, LTV had mistakenly added the cost of the new unit but not deducted the cost of the old unit.





Negotiations were reopened with LTV and on 31 August 1970, a supplemental post-negotiation clearance was submitted that contained target prices of \$222.6 million for 74 A-7D's and \$508.4 million for 317 A-7F's. The NAVAIR contracting officers made a presentation to the Procurement Control and Clearance Division on 15 September 1970 concerning the fixed-price incentive, successive target contract for FY67-FY69. The contracting officers stated that 85% of the costs had already been incurred and the contractor was in the middle of the profit range thus any further adjustment in cost would not affect the final outcome. Further, the contract was subject to a final audit at contract completion that would disallow any inappropriate charges. On 17 September 1970, the firm targets were approved.

On 14 October 1970, another business clearance was submitted requesting authority to issue a letter contract to LTV for the FY70 procurement. The clearance stated the letter contract was necessary to protect option prices on major avionics. A fixed price contract was impossible at this time because the Navy and LTV still had major differences on "contract terms and conditions."

On 21 October 1970, the Head of the Procurement Control and Clearance Division revoked the previous authority (May 1970) to issue a letter contract for FY70 A-7 procurement and disapproved the current request. In his reply he stated that the facts indicated a flagrant misuse of the long lead-time funding authority in that:





1) The long lead-time amendment had been in affect for almost 24 months

2) The aircraft were scheduled for delivery beginning January 1971

3) The aircraft were approximately 40.5% physically complete.

He advised NAVAIR "to bend every effort to negotiate a definitized contract."

On the afternoon of 22 October 1970, the Head of Procurement Control and Clearance Division reversed his earlier ruling and approved the clearance for a letter contract. He stated that he had been informed of an inquiry by a staff member, Senate Armed Services Committee, into long lead-time funding for FY70 A-7 procurement. Since both the staff member and LTV had been assured by NAVAIR in writing that a letter contract would be issued in October 1970, he felt obligated to present a Navy united front. Thus he allowed the letter contract commitments to be honored. The letter contract was issued 30 October 1970, to be definitized by 31 December 1970. The letter contract was subsequently converted to a fixed-price-incentive contract in March 1971.

With the problems of the FY67-FY69 contract solved and the FY70 procurement definitized, there was sufficient data available for timely future A-7 negotiations. The FY71 procurement of 88 A-7D's and 30 A-7F's had an approved pre-negotiation clearance on 25 May 1971, for a \$191.9 million fixed-price-incentive contract. On 22 June 1971, the fixed-price incentive contract was awarded for \$192.3 million.



## V. A-7E VAST CASE

### A. INTRODUCTION

The A-7E VAST CASE starts as the A-7D and A-7E letter contract problems are compounding. This particular case is presented to illustrate the inherent conflicts in the acquisition of a complicated system. In this respect it is a logical extension of the Letter Contracts Case as it traces in detail the procurement history of one system. The final conflict illustrates the fact that real world procurement problems do not divide neatly into right and wrong.

### B. A-7E VAST

In November 1968, Long-Temco-Vought began work on a supplementary program to its A-7 series aircraft concerning the Versatile Avionic Shop Test (VAST) equipment. The concept of the program was to replace the variety and number of special support equipment required for the A-7E with a single large test unit that used a computer to automatically test the faulty components. Thus a small group of highly trained personnel, working in one area with a computer interface, would perform maintenance on aircraft subsystems better and faster than previously possible.

The VAST system had been developed by PRD Electronics under a Navy contract awarded in 1965. In 1968, the VAST system was delivered to the first (LTV) of several Navy aircraft manufacturers who then had the responsibility to integrate VAST with its new aircraft. This involved either



modifying the avionics to make them VAST testable or recommending changes to the VAST equipment itself.

In early March 1969, the Contracting Officer signed the Determinations and Findings citing exception #10 (competition impracticable) as the reason for sole-source negotiations with LTV for the A-7E VAST. In April 1969, a letter contract was awarded to LTV after approval by the Procurement Control and Clearance Division. This letter contract covered only a Program Design Assurance Plan (PDAP) for LTV's submission of data and prototype equipment to prove the A-7E VAST concept. The cost of this PDAP was estimated to be \$12.0 million. The letter contract itself was specifically limited to 50% of contract cost (\$6.0 million) and was to be definitized by 25 July 1969, (120 days from letter contract award).

The first formal change was not issued until 9 December 1969. In the terminology of future changes, it was listed as MOD P001. With the letter contract still in effect, this change extended the definitization schedule from 120 days to 235 days. The stated problem was late Government furnished software necessary for the PDAP. Again on 5 January 1970, by MOD P002, the definitization schedule was extended from 235 days to 283 days. The problem was still the non-availability of Government furnished software.

The first increase in contract funding came on 21 January 1970 (389 days from the letter contract award). The contract definitization time had more than doubled and the initial funding was almost exhausted. This MOD P003 increased the allowable cost by \$1.0 million to a new funding limitation





of \$7.0 million. Further, it extended the definitization schedule from 283 days to 326 days (or 27 February 1970). The problem this time was a tight budgeting constraint within the Navy. This constraint had caused a re-evaluation of the A-7E VAST program and culminated in the cancellation by Naval Air Systems Command of the A-7E VAST proposal that was to definitize the letter contract.

Under a letter contract the A-7E VAST program could change. The nature of the program, however, encouraged even more change. Much of the A-7E special support equipment was already available, but the A-7E was being used as the first aircraft to test the VAST concept. When funding was restricted it was only necessary to shift support of some avionics equipment to available special support equipment and save money in the A-7E program. These actions rarely had impact on the other planned A-7E VAST interfaces.

Due to the funding problem, the A-7E VAST program continued to be undefined as to system coverage through 16 March 1970. On this date the contracting officer issued a "Stop-Work" order for certain parts of the program. This mainly suspended the procurement of certain plugs and electronic receptacles until the scope of the program work could be properly defined. The planning studies and some assembly work continued.

On May 4, 1970, MOD P004 extended the definitization schedule of the letter contract to 30 September 1970. Even with the "Stop-Work" order some planning, procurement, and testing continued on the A-7E VAST system within the available



funding. This change increased the allowable funding by \$1.6 million to a new limitation of \$8.6 million and set out the following definitization schedule:

31 March 1970 - defined program goals set (Done)

31 May 1970 - price proposal due from LTV

30 September 1970 - contract execution

In June 1970, the A-7E VAST program again encountered definitization problems and the previous "Stop-Work" order was bilaterally extended for 60 days. Once again on 5 August 1970, the same "Stop-Work" order was bilaterally extended to 1 October 1970. MOD P005 was issued on 1 September 1970, and increased the allowable funding by \$1.0 million to a new limitation of \$9.6 million.

Finally on 1 October 1970, the original "Stop-Work" order was cancelled. The Naval Air Systems Command issued the A-7E VAST program concept (mainly systems coverage), but a legal insufficiency was discovered that made it impossible to issue a contract at the time. By 22 October, all the legal problems had been solved and a request for authority to contract was submitted to the Procurement Control and Clearance Division. This prenegotiation clearance was rejected the following day due to lack of proper supporting information.

On 27 October 1970, a complete history of the A-7E VAST program was presented by the Naval Air Systems Command to the Procurement Control and Clearance Division. The focal points of the presentation were the many required changes in program



direction and the ensuing problems they caused to Government and Contractor alike. Within a week of this conference, the allowable funding of the letter contract was raised \$507,000, to a new limitation of \$10.107 million. It was then stated that the contract would be definitized by 18 December 1970. Further, the following funding schedule was proposed through contract completion:

January 1971	\$10.469 million
February	\$10.930 million
March	\$11.294 million
April	\$11.598 million
May	\$11.849 million
June	\$12.101 million (contract complete)

On 31 December 1970, however, the definitization schedule was extended to 15 January 1971, at no extra cost to the Government. The stated reason for this slippage was "due to unexpected complexities encountered in the preparation of the business clearance."

Finally, on 12 January 1971, the pre-negotiation position of the Naval Air Systems Command was submitted and approved by the Procurement Control and Clearance Division. This position called for the conversion of the VAST letter contract with LTV to a cost-plus-fixed-fee contract (CPFF).

Cost	\$10,528,818
. Fee	938,118
	<hr/>
Price	\$11,466,118





This pre-negotiation price contained an 8.91% fee. The negotiator stated that he anticipated a difficult time holding this fee rate since "highly specialized contract engineering hours are being treated as subcontracted items in the 1%-5% range, when actually they could be treated as engineering direct labor in the 9%-15% range." These above the line calculations within the weighted guidelines could raise the profit fee approximately 1%.

On 22 January 1971, negotiations with LTV were completed on the conversion to a cost-plus-fixed-fee contract. The negotiation clearance was submitted to Procurement Control and Clearance Division and the definitization schedule was officially extended to 29 January to allow review. The post-negotiation clearance had accomplished a price reduction of \$110,836 from the approved pre-negotiation position, however, the cost and fee ratio had shifted.

Post-Negotiation Cost	\$10,380,000	down	\$148,818	from pre-negotiation
Fee	986,100	up	47,982	
Price	\$11,366,100	down	\$100,836	

This constituted a fee of 9.5% on estimated costs. The assigned evaluator within Procurement Control and Clearance Division cited the negotiator's position on engineering hours for the fee increase and on 26 January 1971, forwarded the post negotiation clearance recommending approval.

Within the next two days the following actions occurred. The Head of the Procurement Control and Clearance Division





felt only a fee of 8.91% was merited on this CPFF contract. He recommended disapproval of the 9.5% fee from the business consideration stating that contract performance was 90-95% complete. He further stated that he did not want that kind of fee precedent set at LTV, but the fee "would be OK in any other type of contract." His superior, the Deputy Chief of Naval Material (Procurement and Production) signed the post-negotiation clearance at the 9.5% fee and so advised NAVAIR.



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complicated the definitization of these contracts.

To better understand these problems and the Navy business clearance process, a history of the Navy Procurement Control and Clearance Division is presented in Section II. Sections I and III present A-7 contracts in case study format for the A-7A, A-7B, A-7D, and A-7E. Section IV is a case study of the A-7E VAST contract.

The procurement of a military aircraft is a complex process. The Project Manager and the contracting officer must constantly strive to make the technology advances and requirement changes compatible with sound business practices. The study of the A-7 contracts illustrates many of the inevitable conflicts that arise in this process.







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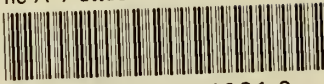
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